



Docket No.: 43890-670

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Application of

Hideki KUWAJIMA, et al.

Application No.: 10/811,895

Filed: March 30, 2004

For: SPINDLE MOTOR AND DISK DRIVE UNIT

: Customer Number: 20277

: Confirmation Number: 1335

: Group Art Unit: 2655

: Examiner: Unknown

**PETITION TO MAKE SPECIAL UNDER 37 C.F.R. §1.102(d)**

Mail Stop Petitions  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants hereby petition to make special the above-identified application in accordance with 37 CFR §1.102(d). Submitted below are items (A) through (E) as required pursuant to MPEP § 708.02(VIII):

**A. FEE**

Submitted with this petition to make special is the fee of \$130.00 as set forth in 37 CFR § 1.17(h). The Commissioner is hereby authorized to charge any fees due or any overpayment associated with this communication to Deposit Account No. 50-0417.

**B. SINGLE INVENTION**

In the event that the Office determines that all the claims presented are not obviously directed to a single invention, it is hereby submitted that the Applicants will make an election without traverse as a prerequisite to the grant of special status.

**C. PRE-EXAMINATION SEARCH**

Submitted herewith is a search report issued by a foreign patent office in a corresponding foreign application having claims of similar scope to the claims currently pending in this application.

**D. COPY OF REFERENCE**

Submitted herewith are copies of the following references cited in the Search Report and deemed most closely related to the subject matter encompassed by the claims:

Hisabe et al. (EP 0 392 500)

Goto et al. (USPN: 6,371,650)

**E. DETAILED DISCUSSION**

Submitted next is a detailed discussion of the references which points out, with the particularity required by 37 CFR § 1.111(b) and (c), how the claimed subject matter is patentable over the aforementioned references.

According to an embodiment of the present invention, a spindle motor is provided with a chassis having a protruding portion in an area around a cylindrical portion of a support column, wherein a height of the protruding portion is greater than a height of a stator-side bearing member, as particularly recited in each of independent claims 1 and 10 of the present application.

More particularly, as shown in Figures 1 and 3 of the present application, a chassis (8) is provided with a protruding portion (8a) in an area around a cylindrical portion of a support column (7), wherein a height of the protruding portion (8a) is greater than a height of a stator-side bearing member (6).

By providing the protruding portion in the aforementioned manner such that the height of the protruding portion (8a) is greater than a height of a stator-side bearing member (6), a fluid such as a hydrodynamic lubricant contained in the bearing space

between the underside of the rotor-side bearing member (3) and the upper side of the stator-side bearing member (6) can be prevented from being dispersed outside of the rotor hub (2) and onto the disk (15) (see Figures 1 and 3 and [0034] and [0035] ).

According to another embodiment of the present invention, a spindle motor is provided with a rotor hub having a protruding portion extending in an area located between the rotor-side bearing member and the rotor magnet, as particularly recited in each of independent claims 19 and 21 of the present application.

More particularly, as shown in Figure 7(b) of the present application, a rotor hub (72) is provided with a protruding portion (72e) extending in an area located between the rotor side-bearing member (173) and the rotor magnet (4).

By providing the protruding portion to extend in the area located between the rotor side-bearing member (173) and the rotor magnet (4), a fluid such as a hydrodynamic lubricant contained in the bearing space between the underside of the rotor-side bearing member (173) and the upper side of the stator-side bearing member (76) can be prevented from being dispersed outside of the rotor hub (72) and onto the disk (15) (see Figure 7(b) and [0062] and [0064] ).

It is submitted that the above-discussed features recited in independent claims 1, 10, 19 and 21 of the present application, and the above advantages resultant therefrom, are not disclosed or suggested by the Hisabe et al. (EP 0 392 500) or Goto et al. (USPN: 6,371,650) references taken either alone or in combination.

The Hisabe et al. reference relates to a spindle motor capable of rotating at high speed and designed to rotate with minimal vibrations irrespective of the position of the motor (column 1 [lines 1-8]). As shown in Figure 9, the rotor magnet member 8 is secured to the inner peripheral of the lower part of the rotor 6 and the stator coil 5 is secured to lower part of support shaft 2, thereby forming a radial gap type motor [column 14 (lines 25-30)]. The center of the axial length of the stator coil 5 and that of the rotor magnet member 8 are offset from each other for preloading purposes. [Figure 9 and column 14 (lines 31-35)].

However, unlike the embodiments of the present invention which provide a protruding portion in the chassis or in the rotor hub, the Hisable et al. reference does not disclose or suggest the use of such protruding portions and, as a result, there is a possibility that fluid mist could disperse outside of the rotor hub and onto a supported disk. For example, there is a possibility that a fluid, i.e., lubrication oil, existing within the gap between the movable piece 3a and the fixed piece 3b constituting the thrust bearing shown in Figure 9 could be dispersed to the disk ( not shown in Figure 9 ) via unoccupied outer space outside on the rotor [Figure 9 and columns 14 (lines 22-36)].

The Goto et al. reference relates to a spindle motor having a double sleeve structure fluid type dynamic pressure bearing (see abstract and column 3 [lines 62-66]). As shown in Figure 1, a cup-like rotor hub 2b is provided within the chassis 16, the cup-like rotor hub 2b serving as a rotor member for the spindle motor having a rotor magnet 22 mounted on an inner peripheral surface thereof [see Figure 1 and column 4 (lines 17-20)]. Also, a lubrication oil 18 is filled with a first fine gap 5, second fine gap 6 and third fine gap 7 [see Figure 1 and column 4 (lines 44-45)].

However, unlike the embodiments of the present invention which provide a protruding portion in the chassis or in the rotor hub, the Goto et al. reference does not disclose or suggest the use of such protruding portions and, as a result, there is a possibility that fluid mist could disperse outside of the rotor hub and onto a supported disk. For example, there is a possibility that the lubrication oil 18 existing within the first fine gap 5, second fine gap 6 and third fine gap 7 could be dispersed through the tapered openings 11 and 12 to an outside of the cup-like hub 2b and onto the disk via the open spaces existing between the chassis 16 and the cup-like hub 2b [see, Figure 1 and column 4 (lines 31-45)].

Thus, it is submitted that the Hisabe et al. and Goto et al. references, taken either alone or in combination, fail to disclose or suggest a spindle motor provided with a chassis having a protruding portion in an area around a cylindrical portion of a support column, wherein a height of the protruding portion is greater than a height of a stator-side bearing member, as particularly recited in each of independent claims 1 and 10 of the present application.

It is further submitted that the Hisabe et al. and Goto et al. references, taken either alone or in combination, fail to disclose or suggest a spindle motor provided with a rotor hub having a protruding portion extending in an area located between the rotor-side bearing member and the rotor magnet, as particularly recited in each of independent claims 19 and 21 of the present application.

In view of the foregoing, it is submitted that the present invention, as recited in independent claims 1, 10, 19 and 21, as well as the claims dependent thereon, is clearly allowable and the Examiner is kindly requested to promptly pass this case to issuance.

**CONCLUSION**

In view of satisfying each of requirements (A) through (E) as demonstrated above, the Examiner is respectfully requested to grant this petition to make special and accelerate examination of this application.

In the event that the Examiner has any comments or suggestion of a nature to expedite prosecution of this application, the Examiner is kindly requested to contact the Applicants undersigned representative.

Respectfully submitted,

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Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

## COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

☒ abstract

☒ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

1

## REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
① X ✓	EP 0 392 500 A (EBARA CORP) 17 October 1990 (1990-10-17) * column 5, line 38 - column 7, line 23; figures 1,13,14,16 *	1-4,9-14	H02K5/16 H02K7/08
Y		5,6,15, 16	
A		7,8,17, 18	
② Y ✓	US 6 371 650 B1 (NAKAYAMA YUKIHIRO ET AL) 16 April 2002 (2002-04-16) * column 2, line 34 - line 37 * * column 4, line 20 - line 40; figure 1 *	5,6,15, 16	
A		8,9,11, 18	
③ A ✓	US 6 211 592 B1 (ICHIYAMA YOSHIKAZU) 3 April 2001 (2001-04-03) * figure 1 *	1,7	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			H02K
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 October 2004	Examiner Sedlmeyer, R
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 00 7859

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

25-10-2004

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0392500	A	17-10-1990	AT	119306 T	15-03-1995
			DE	69017248 D1	06-04-1995
			DE	69017248 T2	26-10-1995
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			JP	3159551 A	09-07-1991
			US	4998033 A	05-03-1991
			JP	3128649 A	31-05-1991
			JP	3159552 A	09-07-1991
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US 6211592	B1	03-04-2001	JP	2000350408 A	15-12-2000